

Non-Competitive Markets

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1. Monopoly
2. Monopolistic Competition
3. Oligopoly

Reading list

Mankiw Ch 13-17

└─ 1.1 Key features

Monopoly

- ⦿ A lot of buyers, but only sole seller. (Price maker)
- ⦿ Monopolist's product is rarely replaceable.
- ⦿ Barriers to entry

└─ 1.1 Key features

Monopoly

Examples ?

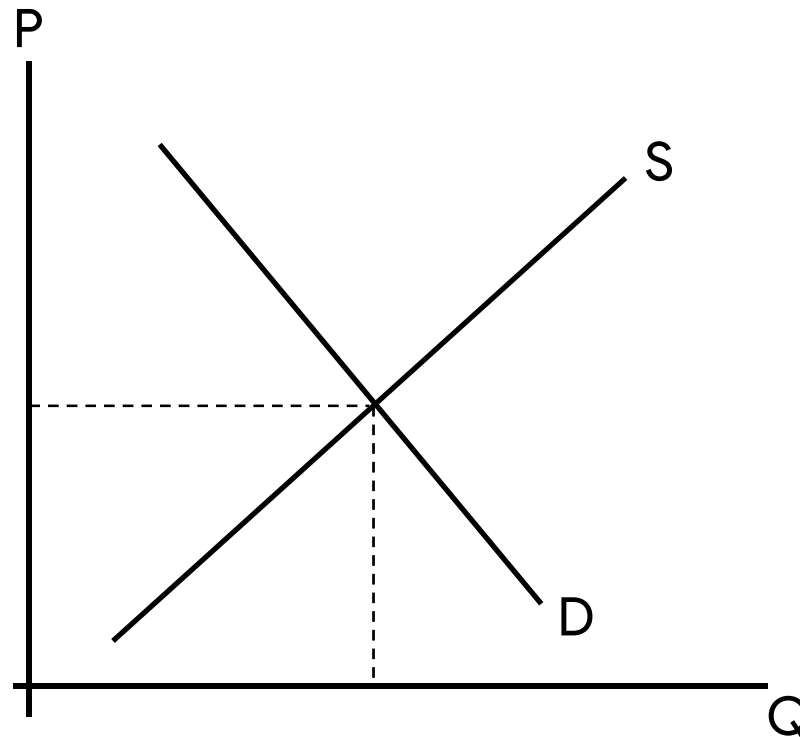
└─ 1.1 Key features

Causes of monopoly

- ⦿ An incumbent holds a significant material or factor of production.
- ⦿ There are several institutions supporting monopoly such as legal patent, concession.
- ⦿ Some product or market is natural monopoly because of its economies of scale.
- ⦿ Product differentiation.

1.2 Demand curve

Price maker



Firm = Industry

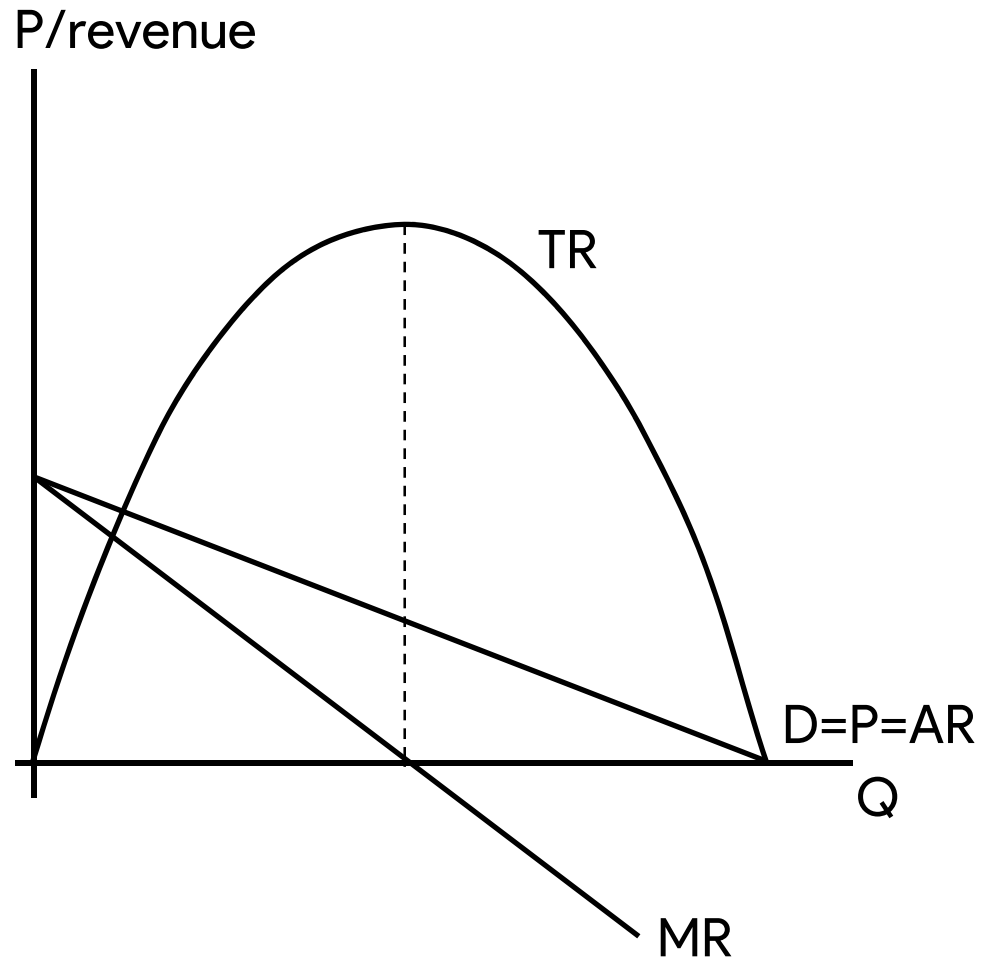
└─ 1.3 Revenue and profit

1 (Q)	2 (P)	3 (TR)	4 (AR)	5 (MR)
Quantity	Price	Total revenue	Average revenue	Marginal revenue
1	25			
2	20			
3	15			
4	10			
5	5			

1. Monopoly

Non-Competitive Markets

└ 1.3 Revenue and profit



└─ 1.3 Revenue and profit

- If the demand is linear, then, marginal revenue is as twice as steep compared to the demand line.

- Example: $P = 60 - 4Q$

1. Monopoly

Non-Competitive Markets

1.4 Short-run equilibrium

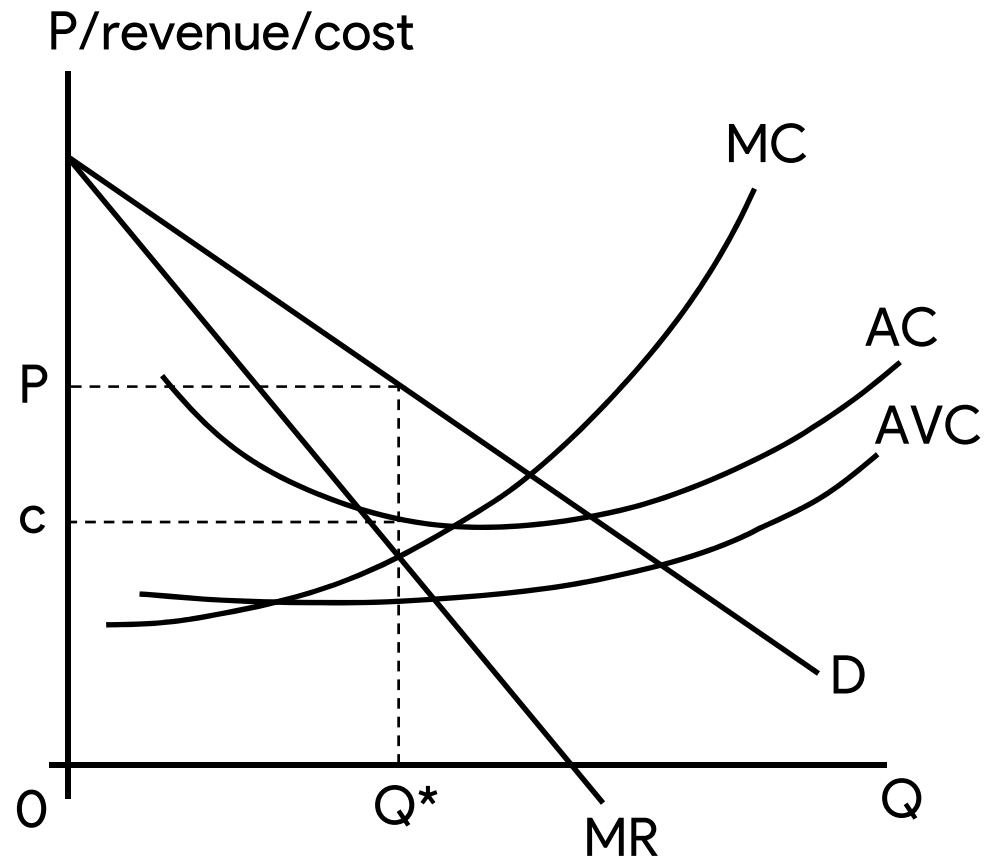
(1) Excess profit case

Consider from average revenue/cost

● Total revenue

● Total cost

● Profit (revenue-cost)



1. Monopoly

Non-Competitive Markets

1.4 Short-run equilibrium

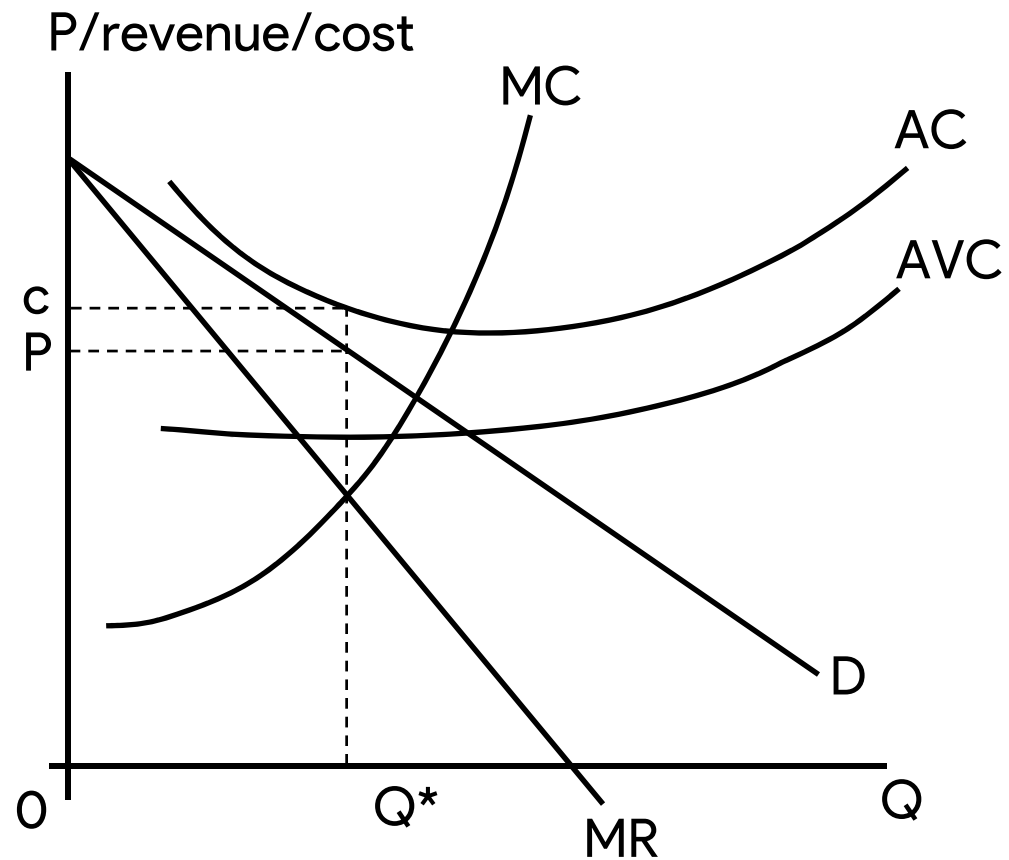
(2) Loss

Consider from average revenue/cost

● Total revenue

● Total cost

● Profit (revenue-cost)

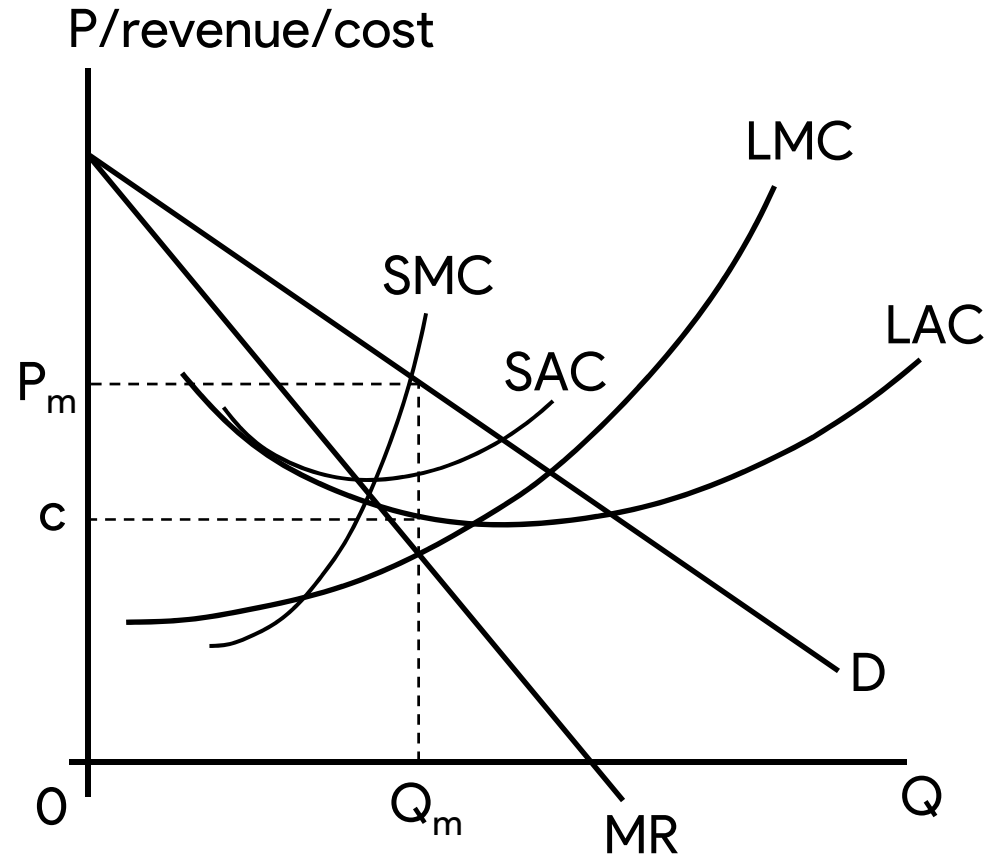


1. Monopoly

Non-Competitive Markets

└ 1.5 Long-run equilibrium

- In the long-run, monopolist tends to maintain market power.



Price discrimination

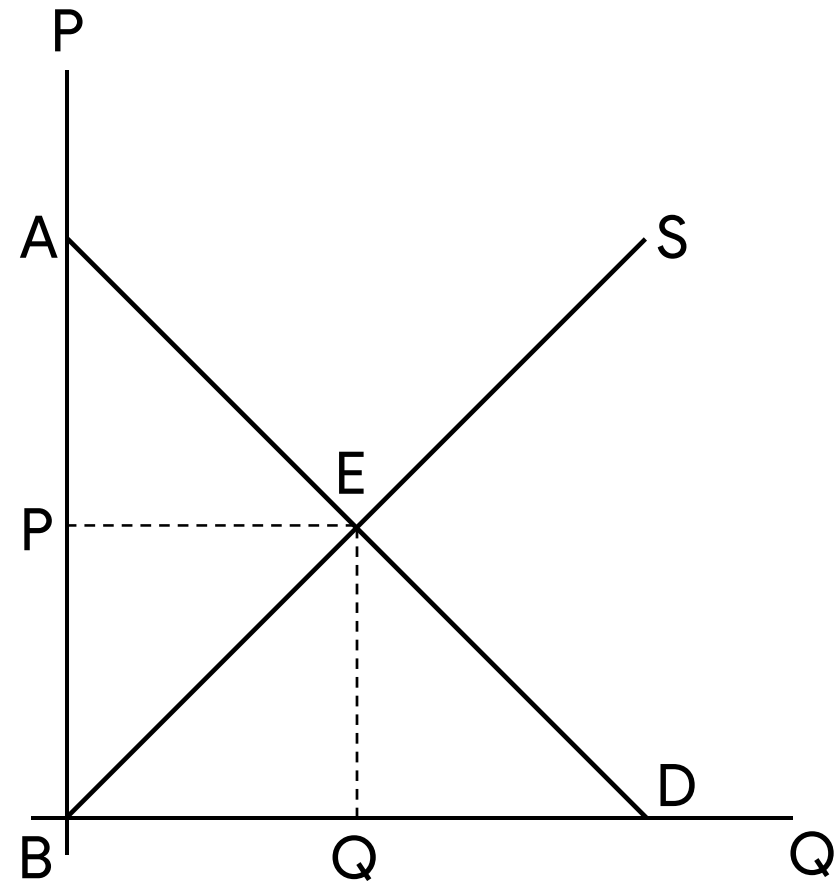
In a monopoly market, the firm can manipulate market power by selling product with different or discriminating price in order to gain consumer surplus as a monopolist's profit. Price discrimination can be divided broadly into 3 types depending on its degree.

- ⦿ First-degree price discrimination
- ⦿ Second-degree price discrimination
- ⦿ Third-degree price discrimination

└ 1.6 Price Discrimination

First-degree price discrimination

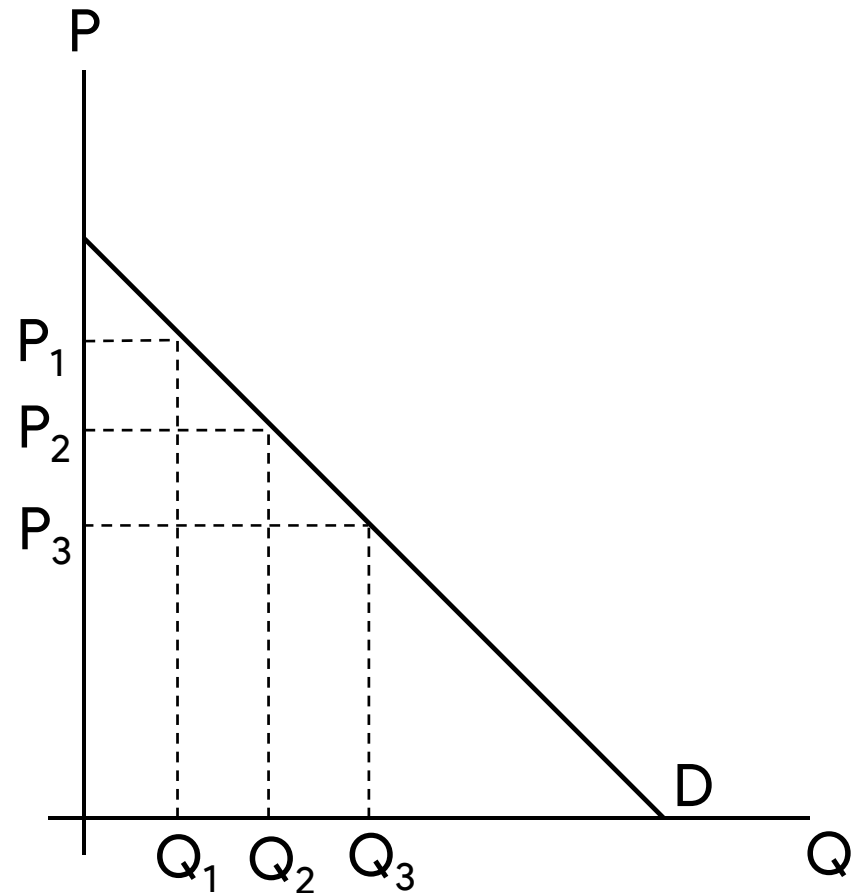
- ⦿ The monopolist must have perfect information of every consumers' willingness to pay.
- ⦿ Total consumers' surplus then can be turned into monopolist's profit.
- ⦿ This degree of price discrimination may not be possible.



└ 1.6 Price Discrimination

Second-degree price discrimination

- ☉ Monopolist can discriminate price by quantity sold.
- ☉ Some of the consumers' surplus can be turned into monopolist's profit.
- ☉ Mostly done with bulk sale.

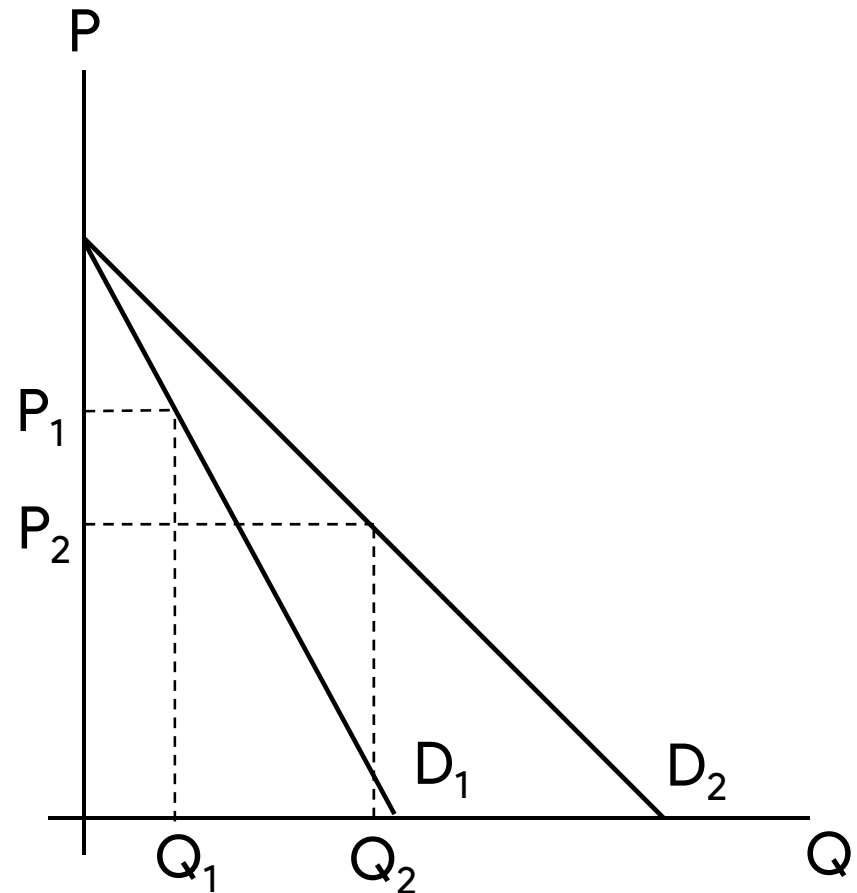


└ 1.6 Price Discrimination

Third-degree price discrimination

Three conditions are needed to be met.

- ☉ Consumers must be able to be divided into more than 2 groups.
- ☉ Each group of consumer differs in their demand elasticity.
- ☉ Consumer cannot buy with cheaper price and sell to another. (Arbitrage – taking advantage of price difference)



└─ 1.6 Price Discrimination

Other price discrimination schemes

- Intertemporal price discrimination – such as tech products cycle.
- Peak-load pricing – such as airplane flight, zoo ticket, data or call limit.

1. Monopoly

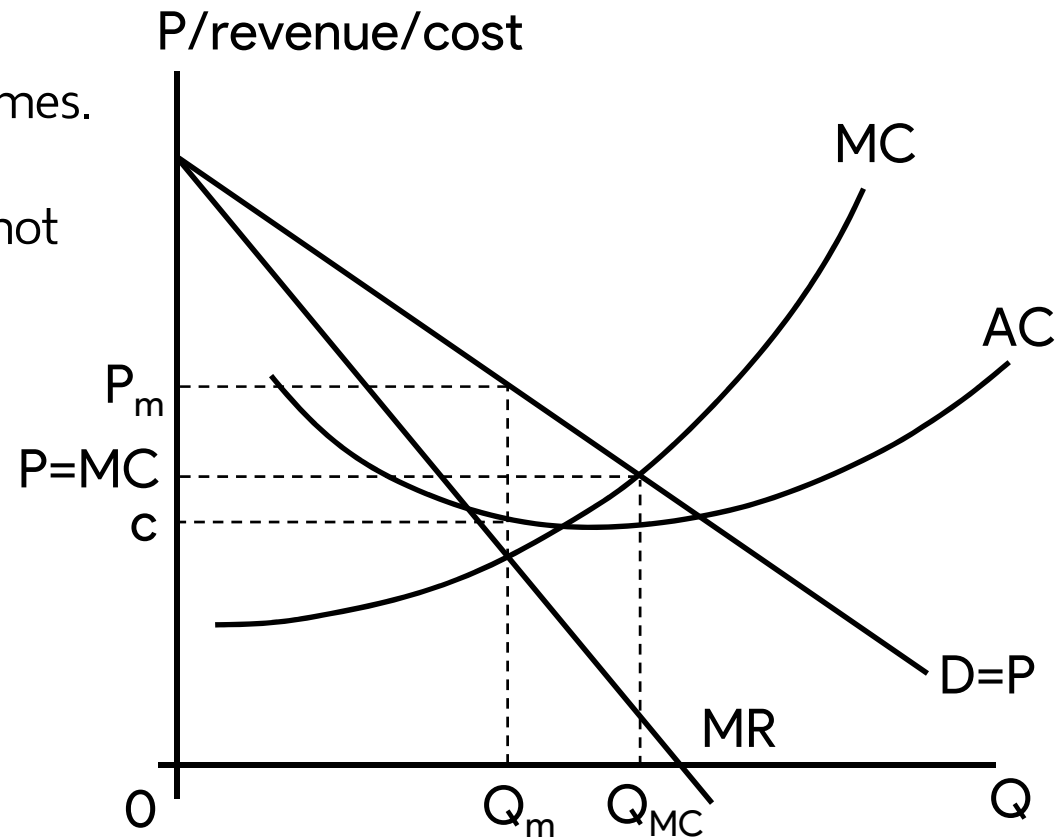
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1.7 Controlling monopolist

Ideal price ($P=MC$)

Government can interfere the monopolist by setting price schemes.

☉ Monopolist will gain profit or not depend on cost.



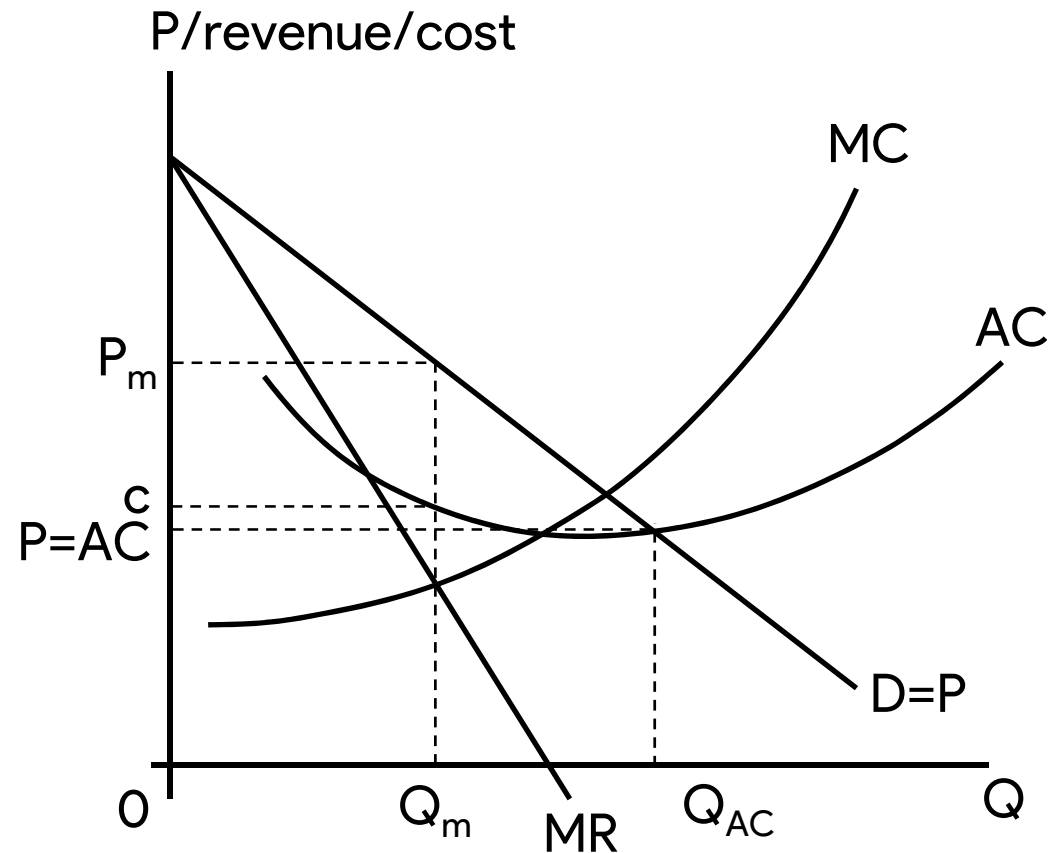
1. Monopoly

Non-Competitive Markets

1.7 Controlling monopolist

Fair price ($P=AC$)

● In this case, normal profit is guaranteed for monopolist.



1.8 Comparing competitive market to monopoly.

⦿ Is a society always worse off if a monopolist gain excess profit in the long-run?

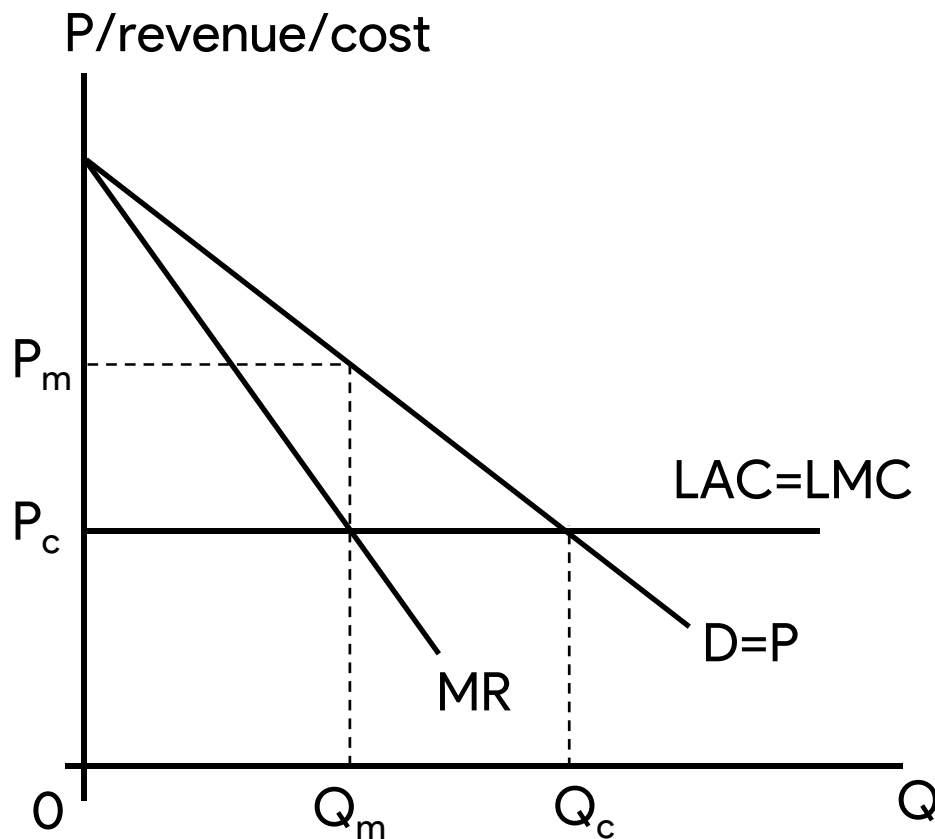
⦿ What does it mean by $P_M > LAC > LMC$ compared to $P_C = LAC = LMC$ in perfect competitive market.

1. Monopoly

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1.8 Comparing competitive market to monopoly.

- Assume that efficiency and economy of scale is the same for a product in both perfect competitive and monopoly market



- CS in monopoly market.
- CS in perfect competitive market.
- Monopolist's profit.
- Deadweight loss from monopoly.

└─ 2.1 Key features

Monopolistic competition

- ⦿ A lot of buyers and sellers, but not as many as in perfect competitive market.
- ⦿ Firms have market power, but not very much.
- ⦿ Products can be substitutable, can be differentiated.
- ⦿ New comers can enter the industry easily.

└ 2.1 Key features

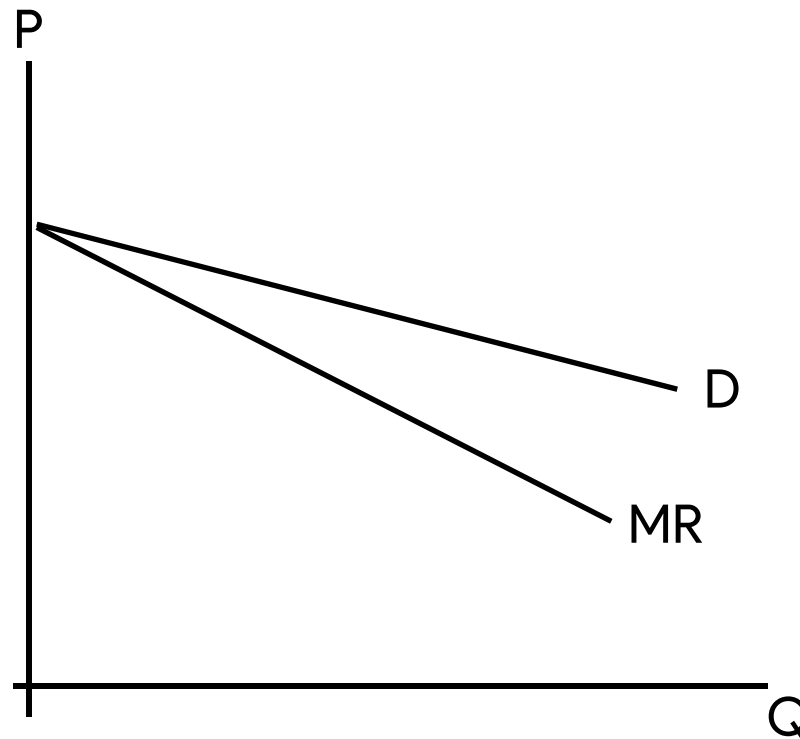
Monopolistic competition

Examples?

└ 2.1 Key features

Monopolistic competition

Demand in firms' point of view.

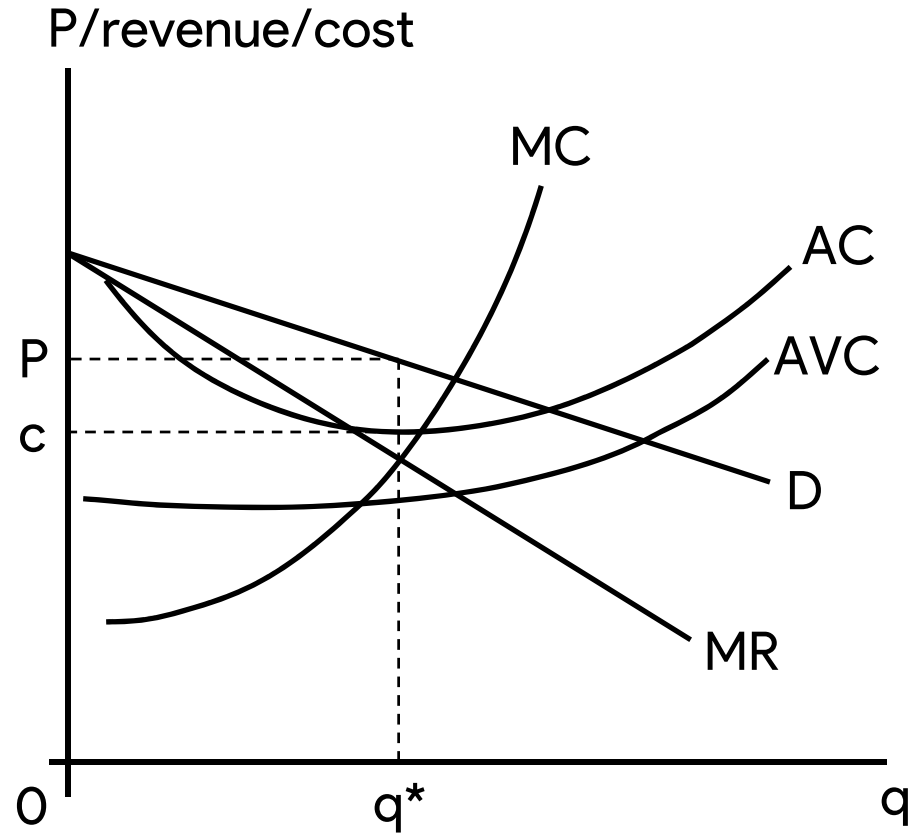


2. Monopolistic Competition

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2.2 Short-run equilibrium

- Total revenue.
- Total cost.
- Profit (revenue-cost)

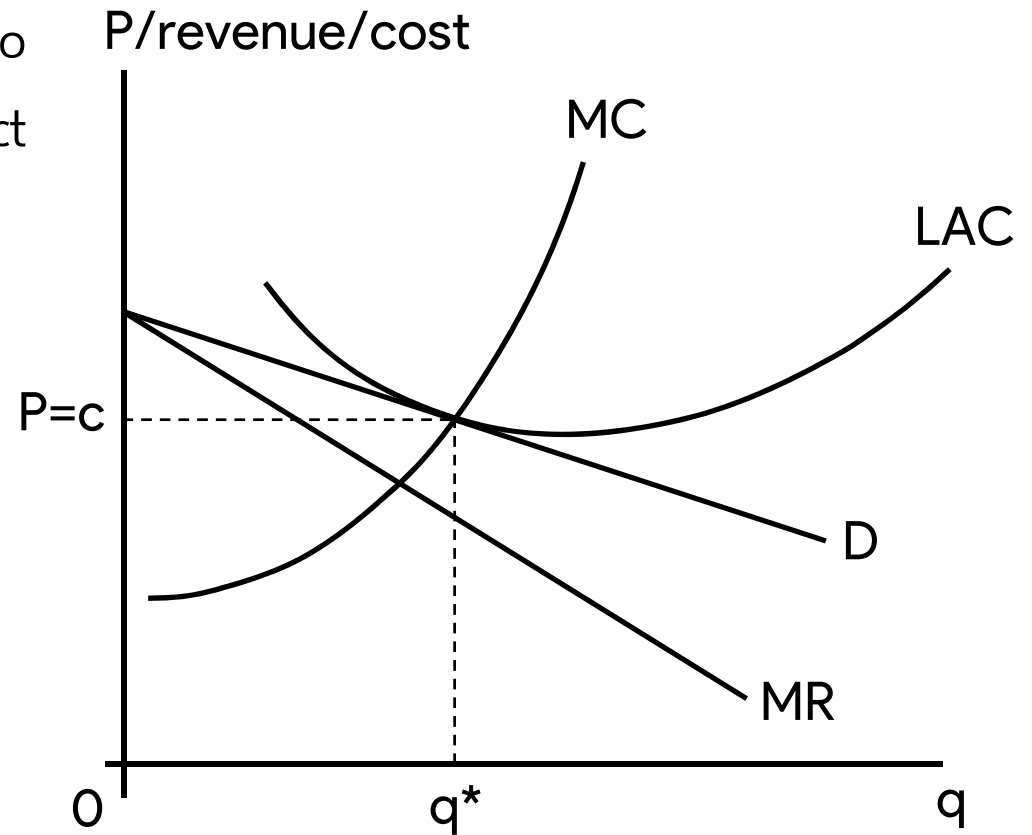


2. Monopolistic Competition

Non-Competitive Markets

2.3 Long-run equilibrium

- In the long-run, firms tend to gain only normal profit as in perfect competitive market.



└─ 3.1 Key features

Oligopoly

- ⦿ A lot of buyers, but only a few sellers. If there are two firms, the market is called duopoly.
- ⦿ Firm's decision affect other firms in the industry.
- ⦿ Product can be either homogenous or differentiated.
- ⦿ New producers can hardly enter the market.

└ 3.1 Key features

Oligopoly

Examples?

└─ 3.1 Key features

Oligopoly

There is no universal model for oligopoly, since competition depends on firms' actions and reactions. Therefore, there are many models that capture different situations in this type of market such as

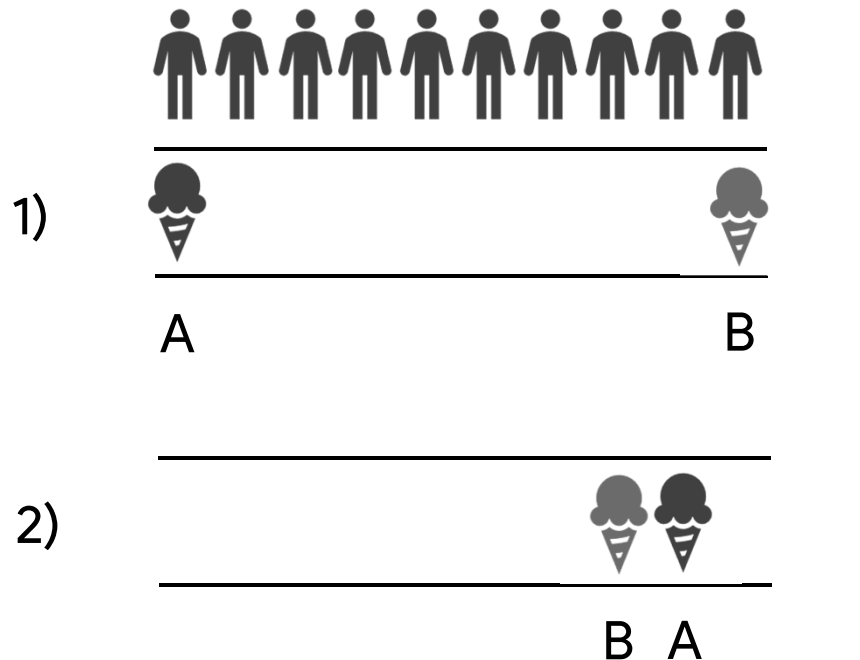
- ⊙ Kinked demand curve
- ⊙ Price leadership
- ⊙ Cartel
- ⊙ Hotelling model
- ⊙ Game theory

3. Oligopoly

Non-Competitive Markets

3.2 Hotelling model

Supposed that there are two ice-cream parlors A and B, they can place their shop anywhere along an horizontal line where consumers live along this line. Given that there are 10 consumers in this market and both parlors sell that same quality ice-cream at the same price. Hence, the only cost consumers are having is the travel distance.



└ 3.2 Game theory

Game theory is a study of how agents in a game react under different circumstances of a game. A game's attributes are defined by.

- ⦿ Players
- ⦿ Rules
- ⦿ Payoff
- ⦿ Information

└ 3.2 Game theory

Picking a present

A father of 2 sons (A and B) is planning to buy a console for each of them (Nintendo Switch and PlayStation). Both sons can pick only one console without any knowledge of other's decision. Their utility also depends on another's decision.

		B	
		Nintendo	PlayStation
A	Nintendo	2 , 2	5 , 6
	PlayStation	1 , 2	4 , 3

Utility of A , B

Dominant strategy

is a pure strategy that will maximize one's payoff without considering other's.

		B	
		Nintendo	PlayStation
A	Nintendo	2 , 2	5 , 6
	PlayStation	1 , 2	4 , 3

Utility of A , B

⦿ Dominant strategy of A

Dominant strategy

is a pure strategy that will maximize one's payoff without considering other's.

		B	
		Nintendo	PlayStation
A	Nintendo	2 , 2	5 , 6
	PlayStation	1 , 2	4 , 3

Utility of A , B

⦿ Dominant strategy of B

Dominant strategy equilibrium

is the equilibrium of dominant strategy.

		B	
		Nintendo	PlayStation
A	Nintendo	2 , 2	5 , 6
	PlayStation	1 , 2	4 , 3

Utility of A , B

⦿ Dominant strategy equilibrium of this game.

Confrontation game

Supposed that there are two persons A and B confronting each other in a hallway. Both can choose to walk on their left or right in order to keep on moving forward.

		B	
		Left	Right
A	Left	1, 1	-1, -1
	Right	-1, -1	1, 1

A , B Payoff

⦿ Does each player has a dominant strategy?

└ 3.2 Game theory

Nash Equilibrium

is an equilibrium (or equilibria) which give the best result for each player, accounting other's decision.

		B	
		Left	Right
A	Left	1, 1	-1, -1
	Right	-1, -1	1, 1

A , B Payoff

⦿ A's strategy

└ 3.2 Game theory

Nash Equilibrium

is an equilibrium (or equilibria) which give the best result for each player, accounting other's decision.

		B	
		Left	Right
A	Left	1, 1	-1, -1
	Right	-1, -1	1, 1

A , B Payoff

⦿ B's strategy

└ 3.2 Game theory

Nash Equilibrium

is an equilibrium (or equilibria) which give the best result for each player, accounting other's decision.

		B	
		Left	Right
A	Left	1, 1	-1, -1
	Right	-1, -1	1, 1

A , B Payoff

⦿ Nash equilibrium (or equilibria)

Nash Equilibrium

		B		
		Lollipop	Marsh mallow	Nougat
A	Lollipop	2 , 2	5 , 6	1 , 5
	Marsh mallow	1 , 2	4 , 3	0 , 0
	Nougat	0 , 3	1 , 4	0 , 1

A , B Profit

☉ If a game has a dominant strategy, it is also a Nash equilibrium.

└ 3.2 Game theory

Prisoners' dilemma

Two offenders are accused for a heist. Before they are investigated they agree upon the best solution of both being silent to serve the least jail time. Later, they are individually investigated without knowing other's response.

		B	
		Confess	Silent
A	Confess	8 , 8	0 , 20
	Silent	20 , 0	2 , 2

A , B years of jail time

⦿ Does this game has a Nash equilibrium?